

**SUPPORT FOR THE AMENDMENT**

Claim 19 is amended to specify that the higher amount of propylene production is recovered so as to emphasize the process nature of the claim rather than the catalyst composition. This is evidenced from the data in Table II and the discussion just below it on page 15 of the specification.

**REMARKS****The Claimed Invention**

Independent claim 19 claims a catalytic cracking process to produce C3 olefins using a first molecular sieve having an intermediate pore size and a different structure type second molecular sieve which has a pore size index less than the first, and recovering a higher propylene conversion than either component used alone.

Claim 19 has been amended to specify that a higher propylene conversion is recovered than for either catalyst component individually. This is consistent with the specification Table II at page 15 and is intended to clarify the claimed invention.

**35 USC 103(a) Rejection of Claims 19-31, 33-35, 37-41, 45-46, and 49-50 over Ladwig et al. U.S. Patent No. 6,093,867 ("Ladwig")**

These claims were again rejected over Ladwig as obvious to use two molecular sieves either individually or collectively, expecting similar results for the end products.

Applicants argued unexpected results were shown but this was found not persuasive in view of the recitation of Ladwig at column 6, lines 61-62 and certain provisions of Swan et al., U.S. Publication No. 2001/0042700, concerning the combination of zeolite Y and SAPO catalysts for an aromatics recycle cracking process. Applicants respectfully traverse in view of the amendment to the claim and the following considerations.

**Ladwig fails to teach a two component catalyst for a propylene production**

The rejection relies on several segments of Ladwig including certain excerpts from column 4 but the rejection does not rely on Ladwig at column 4, lines 36-46.

Column 4, lines 36-46 of Ladwig is the exact evidence to show that Ladwig does not teach a two component catalytic cracking catalyst as claimed! Ladwig goes out of his way to teach precisely that certain of his inventive catalyst can be "crystalline admixtures", not to be confused with physical admixtures. How would the skilled artisan know which combination of catalysts to choose to obtain better propylene production? Ladwig is of no help.

At this point in the Ladwig disclosure, he had the perfect opportunity to go on and teach that physical admixtures could also be used, **but he did not do so**. In contrast, Applicants have gone out of their way to disclose a physical mixture of two different types of catalysts to provide an improved result, not just a single zeolite that has "faults occurring within the crystal or crystalline area...." (Ladwig at column 4, lines 37-38).

Since Ladwig specifically mentions, **but does not teach or suggest**, the physical admixtures of zeolites in the very next sentence, why didn't he go on to include them in his invention? Of course, he did not and one can surmise that this skilled artisan (Ladwig) could not have contemplated that a lower-producing zeolite could ever improve on the propylene production of the superior ZSM-5 of his invention. That would have been counterintuitive! It is counterintuitive and this surprising effect of the present inventive process is the genius and unobviousness of the present invention.

The fact that Ladwig recites "ZSM-5 or other small or medium pore zeolite..." at column 6, lines 61-62 cannot be interpreted to indicate a combination of catalysts but rather an alternative of catalysts for the breadth of the Ladwig invention. Ladwig specifically uses the disjunctive "or" rather than the conjunctive "and", consistent with his teaching at column 4. Ladwig nowhere in his discussion or examples uses a combination of catalysts, let alone that taught of the present claims.

The Examiner also referred to Swan for teachings of for use of multiple catalysts but Swan does not teach the present inventive process and Swan relies on either zeolite Y

(a large pore zeolite) alone or in conjunction with another zeolite. The claimed invention

is not taught or suggested. See Swan at page 3, the fifth line of paragraph [0024], and paragraphs [0028-0029] wherein zeolite Y plus SAPOs or other catalysts are taught.

These do not meet the present claims.

Even if one argues that a prima facie combination of catalyst components is shown (a showing not agreed by the Applicants), then any such case is overcome by the surprising results of the process of the invention.

**35 USC 103(a) Rejection of Claims 32, 36, 42-44, and 47-48 over Ladwig in view of Swan**

This rejection also fails since all of the rejected claims are dependent, either directly or indirectly on propylene recovery claim 19. Swan is cited to show a possible third component and the combination of components but as discussed above, the claimed combination in a propylene recovery process is not shown.

**35 USC 103(a) Rejection of Claim 51 over Ladwig in view of Purvis et al. U.S. Patent No. 5,981,818 ("Purvis")**

Purvis is recited for a disclosure of polymerizing recovered propylene but the claimed invention is still not shown. The defined process using two different catalyst components for cracking and propylene recovery is not taught or suggested. Since different catalyst systems tend to leave different trace components in the polymer particles, this claim is deemed novel and unobvious over other recovery and polymerization combinations.

Reconsideration in view of the above, withdrawal of the rejections, and allowance of the remaining claims is earnestly solicited.

There being no further issues, Applicants respectfully urge that the present application is in condition for allowance and early indication of such is earnestly solicited.

Respectfully submitted,

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Date



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